

***LineUp With Math™* Alignment**  
**Academic Standards: Mathematics**

**Number and Operation**

**Content Standard 1.0** The student will develop number and operation sense needed to represent numbers and number relationships verbally, symbolically, and graphically and to compute fluently and make reasonable estimates in problem solving.

**Learning Expectations and Accomplishments**

- 8.1.1 Understand numbers, ways of representing numbers, relationships among numbers, and number systems.
- j. understand and use ratios and proportions to represent quantitative relationships;

***LineUp With Math™* Activities**

--Use an interactive simulator plus calculation worksheets to apply proportional reasoning to identify and resolve distance, rate, time conflicts in air traffic control.

- 8.1.3 Solve problems, compute fluently, and make reasonable estimates.

- h. develop, analyze, and explain methods for solving problems involving proportions (e.g., scaling, finding equivalent ratios)

--Use an interactive simulator plus calculation worksheets to apply proportional reasoning to identify and resolve distance, rate, time conflicts in air traffic control.

--Predict and resolve aircraft conflicts and explain results of mathematical calculations and simulations.

**Algebra**

**Content Standard 2.0** The student will understand and generalize patterns as they represent and analyze quantitative relationships and change in a variety of contexts and problems using graphs, tables, and equations.

**Learning Expectations and Accomplishments**

- 8.2.4 Analyze change in various contexts.
- b. develop meaning for rate of change in real-world situations.

***LineUp With Math™* Activities**

--Use an interactive simulator to identify distance, rate, time conflicts in air traffic control problems and resolve the conflicts by varying plane speeds or changing plane routes.

**Geometry**

**Content Standard 3.0** The student will develop an understanding of geometric concepts and relationships as the basis for geometric modeling and reasoning to solve problems involving one-, two-, and three-dimensional figures.

**Learning Expectations and Accomplishments**

- 8.3.4 Use visualization, spatial reasoning, and geometric modeling to solve problems.
- c. use visualization and spatial reasoning to solve real-world problems.

***LineUp With Math™* Activities**

--Use an interactive simulator plus calculation worksheets to model and resolve air traffic control conflicts.

-- Predict and plot the relative motion of two or more airplanes on given paths.

## Measurement

**Content Standard 4.0** The student will become familiar with the units and processes of measurement in order to use a variety of tools, techniques, and formulas to determine and to estimate measurements in mathematical and real-world problems.

### Learning Expectations and Accomplishments

8.4.2 Apply appropriate techniques, tools, and formulas to determine measurements.

g. solve problems involving rate/time/distance (i.e.,  $d=rt$ );

### *LineUp With Math™* Activities

--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.